DEPARTMENT OF MATHEMATICS
UNIVERSITY OF NIJMEGEN The Netherlands

"UNTIRING LABOUR OVERCOMES ALL!"
The Dutch Mathematical Society in European perspective

D.J. Beckers

Report No. 9939 (October 1999)

DEPARTMENT OF MATHEMATICS
UNIVERSITY OF NIJMEGEN The Netherlands

"Untiring Labour Overcomes All!"

The Dutch Mathematical Society in European perspective

D.J. Beckers

Report No. 9939 (October 1999)

DEPARTMENT OF MATHEMATICS
UNIVERSITY OF NIJMEGEN
Toernooiveld
6525 ED Nijmegen
The Netherlands

"Untiring labour overcomes all!"

The Dutch Mathematical Society in European perspective

D.J. Beckers

Abstract

The Netherlands, like some other European countries, witnessed the emergence of several amateur mathematical societies during the 18th and early 19th century. One of them, the Amsterdam Mathematical Society *Untiring Labour Overcomes All*, during the early 19th century became a national institution which embodied almost the entire Dutch mathematical community. It would fulfil its role as a national mathematical Society in the 1860s, when pure mathematics became the subject of professional research and mathematical Societies were founded all over Europe.

This article points out the Dutch social climate (the gap between the social classes was not as enormous as elsewhere in Europe, and engineering courses were part of the mathematics curriculum at the university) and changes within the Society itself, thus describing how it was possible that the *Dutch Mathematical Society* became a link between two kinds of Societies which should be clearly distinguished.

1 Introduction

After 1860 mathematical societies in Europe became a common appearance. These were founded on a national basis, gradually reinforcing international exchange. Although the reasons for founding them were diverse, these societies illustrate the growth of a professional group of mathematicians (cf. [25]) by starting to issue journals, and putting extra emphasis on what was considered pure mathematics [29, pp. 488–490].

In London the Society began in 1865 as a student initiative, inspired by the older *Astronomical Society*. By drawing many important mathematicians it soon established itself [50]. In Bohemia a Mathematical Society was founded even earlier: aroused by nationalist sentiments within the Austrian empire, in 1862 students in Prague started a *Spolek pro volné přednášky z matematiky a fyziky* (Society for lectures on mathematics and physics). The goals were more modest than the ones of the *London Mathematical Society*, but within a decade it became a solid organisation where teachers of all levels were represented [58, 43]. The *Société Mathématique de France* was founded in 1872, more or less as a reaction to the recent war with Germany, and as an attempt of the French mathematical community to prevent lagging behind Germany and England [24, p. 20]. Russia had several mathematical societies, Moscow

(1867) and Kharkov (1879) being the first, St. Petersburg and Kiev (both 1890) following [17].

In the German countries, the founding of a Society had already been suggested in 1867 by Alfred Clebsch. The publication of the *Mathematische Annalen* (since 1868) offered a mouthpiece to German mathematicians, which made the organisation less urgent. It was only in 1890, and from within the Society of German Scientists, that the *Deutsche Mathematiker Vereinigung* was founded (see [57, 22]; [34] treats the subject very thoroughly from a power-politics point of view). In 1888, inspired by the Society in London, a number of students of Columbia University founded the *New York Mathematical Society* for the purpose of discussing mathematical topics. The ambitions of the members soon turned the organisation into a Society representing the American mathematical community as a whole: since 1894 it has operated under the name *American Mathematical Society* [19, 20, 47]. In all their diversity (cf. [25, 26]), the histories of these Societies, and also of those in Italy [11, 25], Eastern Europe [13, 48, 18] and on the Iberian [45] and Scandinavian [10, 55] peninsulae, fit nicely into the more general picture of the rise of mathematics as a profession.

The members of these Societies soon started contacting each other, organizing joint conferences and writing in each other's magazines. Journal exchange programmes were initiated. Among the Societies there also was a *Dutch Mathematical Society*, which had started to issue a journal devoted to pure mathematics in 1856 [64], but which had its roots in the eighteenth century. During the 18th century many mathematical societies existed too. In this article I will propose that these 18th-century Societies can and should be clearly distinguished in historiography from the later Societies of professionals. The history of the *Dutch Mathematical Society* will show a unique link between these two kinds of Societies. Causes for this unique situation will be found in peculiarities of 18th-century Dutch culture.

2 Amateur mathematical activity

From the late 17th, early 18th century onwards, people all over Europe were getting more involved in mathematical activities. More banking, more surveyors, more merchants and a world growing more and more complex, demanded more of mathematical skills [51, pp. 330–332]. Therefore, it may not be all that strange that an interest in mathematical pastime emerged. Apart from the élite, which had always amused itself with "mathematical tricks" (for example: [31, 60, 46]), now surveyors, bookkeepers, and schoolteachers all over Europe discovered the joy of doing mathematics (for the Netherlands, see [9]). This shows in a number of journals and books published since 1700. The *Ladies' Diary* (1704-1872) was one of the first popular journals devoted to mathematical pastime [49]. Many more followed: *Delights for the Ingenious*, the *Miscellaneæ Curiosæ* and the *Gentleman's Diary* in England (cf. [1]), and the *Kunstfrüchte* in Germany [33] for instance. In the United States these journals emerged in the early 19th century: the *Mathematical Correspondent* [35] and the *Mathematical Diary* [36] are well-known examples.

The level of mathematics treated in these publications was not particularly breath-

taking —most journals restricted to arithmetic, elementary geometry and algebra— but their appearance illustrates a widespread interest in mathematics through all social circles. In Hamburg it was this interest that led a group of people found the *Kunstrechnungsliebende Societät* as early as 1690 [4]. This Society was particularly resourceful in publishing books on mathematics (for example: [32, 39]). Other cities followed: the *Spitalfields Mathematical Society* (1717-1846) is the best known British example [12], but there were others (see the appendix). These were locally organised groups of teachers and engineers, who gathered regularly to do mathematics.

These organisations, small-scale as they might have been, were an important benefit for the spreading of mathematical knowledge. Elementary mathematical knowledge was promoted among people who otherwise would not have been in touch with the subject. The people active within these Societies were perfect ambassadors for mathematics within their own social circles. Of course they had their own ideas on what mathematics was about. In the *Spitalfields Mathematical Society* navigation was a popular subject [12]. In Hamburg the mathematics was "anwendungsbezogen" too, and until the 1750s even astrology was considered to constitute a part of the mathematical sciences [4, pp. 82–83].

These examples indicate that long before the 'professional' mathematical Societies treated in the first section came into being, a completely different kind of mathematical Society had already made its appearance in Europe. Its goals having been much humbler and its members less important than those of the later ones, these Societies tend to be forgotten or overlooked in historical research. Since the late 17th century, in many places teachers, engineers and bookkeepers would convene to share the joy of doing mathematics. Not all of them actually founded a Society —many restricted their activities to publishing mathematical questions in a local newspaper— and many of these Societies probably left no trace; the goals of these Societies were usually restricted to making the mathematical sciences more widely known, and supplying the members with a nice amount of mathematical problems. These 18th-century Societies will be denoted with the term "amateur mathematical Societies" —amateur taken in the most neutral meaning of the word.

University mathematicians during the 18th century belonged to another social class. They were either members of the aristocracy or elected members of one of the national academies. The members of the academies held an encyclopedic ideal of science. There seems to have been no relationship whatsoever between the amateur mathematical Societies and the national academies: class differences or different views on what should be the goal of science (e.g. mathematics) probably discouraged contacts between the different social classes. Practically no members of the élite are known to have been members of an amateur Society; vice versa virtually no amateurs were on the membership lists of the scientific academies[1]. Of course there were situations were the good amateur could find his knowledge esteemed by his aristocratic contemporaries: in France, for example, local academies during the era of Enlightenment incorporated both élite scientists and amateurs [52]. In contrast, in 18th-century Britain the Royal Society had an air of nobility which frightened off the

[1] Most noteworthy exceptions: Gauss was a member of the amateur mathematical society residing in Hamburg; Thomas Simpson was one of the few commoners elected into the Royal Society.

interested commoner [27]. It is tempting to attribute the relative high amount of amateur Societies in Britain [1] to the exclusiveness of the Royal Society.

Nor was there any relationship between the 18th-century amateur mathematical Societies and the 19th-century Societies that started promoting research in pure mathematics. In fact, most of the amateur Societies had already disappeared by the 1860s (see the appendix), and the only amateur Society still existing —the *Kunstrechnungsliebhaber* in Hamburg— didnot find its members among the university mathematicians until the early 20th century [4, pp. 98–101].

3 Learned Societies in the Netherlands

Unlike most other European countries, none of the Dutch universities accommodated a chair devoted solely to mathematics until the late 19th century. Mathematics was taught at universities, but either as a tool in physics, or as part of engineering courses. The Dutch mathematical community consisted mostly of engineers; mathematical research as was done elsewhere in Europe was largely absent until the 1880s. Engineering courses (in mathematics) being taught in Dutch at the universities since the early 17th century, the distance between aristocracy and engineers was smaller than elsewhere in Europe [61, 8].

The 18th-century Dutch republic (the *Republic of the Seven United Provinces*) was a peculiar nation in other ways too. In fact, it was an association of seven sovereign states and three subjected provinces. All states were autonomous, but promised to — and not always did— follow the same line in foreign policy and military activities. It was not governed by an aristocrat élite but by the wealthy urban "middle classes" [37, 51]. This situation might account for the absence of a national academy of sciences, such as there existed in other European countries. Some of the states developed their own scientific Societies, like the *Zeeuws Genootschap voor Wetenschappen* (Society of Sciences in Zeeland, 1767) and the *Hollandsche Maatschappij voor Wetenschappen* (Society of Sciences in Holland, 1752). These were Societies imitating the foreign academies on a smaller scale —research touching upon the problems of the province was especially valued. Some specialisation might be spotted in the founding of the *Bataafsch Genootschap der Proefondervindelijke Wijsbegeerte* (Batavian Society for Natural Philosophy) in 1769 at Rotterdam [41, pp. 13–15].

All these Societies were mainly sponsored by the members. The Dutch states did interfere with the Society's regulations, and politicians participated, but there was no government funding [40]. This private funding of science —combined with a lack of alternative institutions— gave Dutch science a local and utilitarian character, where much emphasis was laid on the spreading of knowledge. Promoting science, according to many Dutch, meant spreading scientific knowledge among the people. But in general, the membership fee of these Societies was too high for an ordinary school teacher.

It was during the French occupation that the founding of an *Académie* (1808, following the French example) on a national level was decreed. This academy did not play a very significant role until the 1850s [41]. Although several of the members were

in favour of a more professional scientific institute, funding was a problem, also after the kingdom had been established in 1813. The utilitarian view that King William I held of science did not leave much room for professionalisation of science within the academy [59].

4 Dutch Mathematical Societies

In many respects, the developments in the Netherlands during the 18th century resembled those in England and Germany. The magazine *Mathematische Liefhebberijen* (Mathematical Pastimes) [44] was issued from 1754 until 1764. Its readers were mainly teachers. Also, several books published by the Hamburg Society were translated [32, 39] and some Dutch schoolteachers even became members of that Society. Since the last quarter of the 18th century, newspapers and popular journals would pay attention to mathematics and teaching institutes were founded, where pure (or what people considered to be pure) mathematics was taught [5].

A few years after the disappearance of the *Mathematische Liefhebberijen*, the Amsterdam mathematics teacher A.B. Strabbe (1740-1805), who ran a private school, took the initiative and started publishing a mathematical journal [56]. Apparently it was the bankruptcy of this project in 1771 that made Strabbe try to create a Society to guarantee future funding for such a journal. In 1778 the first Dutch Mathematical Society: *Onvermoeide Arbeid komt Alles te Boven* (Untiring Labour Overcomes All)[2,3] was founded in Amsterdam [2]. Before 1810 at least four other mathematical Societies were founded (they're mentioned in the appendix; more details on these in [7]). All of them, including the Amsterdam Society, were comparable with the abovementioned *Spitalfields Mathematical Society*: amateurs, teachers and engineers mostly, who gathered and showed a keen interest in solving elementary mathematical problems. They made themselves useful to their country by producing textbooks, encouraging the production of textbooks, publishing solutions to existing textbooks, or offering mathematics courses. Apart from that, they held regular meetings to convince each other once more of the beauty of their science, and to study.

By 1830 only *Onvermoeide Arbeid* still existed. The others either had disappeared, or their objectives had completely changed [7]. The first half of the 19th century is known for being a difficult time for Dutch Society life: somehow, many Societies did not make it to 1850 [40], but the number of members of the Amster-

[2] The name of the Society in full was: Amsterdam Mathematical Society, under the motto: untiring labour overcomes all (Amsterdams Wiskundig Genootschap onder de zinspreuk: Onvermoeide Arbeid komt Alles te boven). The motto was indicative for the goals of the Society: the members strove to gather mathematical knowledge which needed continuous labour. It was at the time customary to use such lengthy names and create an appropriate emblem to go with the motto. This Society's emblem consisted of several people climbing a pyramid. They stand for the 'untiring labour'. One man stands at the top of the pyramid raising his arms in elation: he has complete overview over the mathematical sciences.

[3] As was the case with all the amateur Societies, also this Society regarded navigation and surveying as part of the mathematical sciences. The first members of the Amsterdam Society were practically all members of the Hamburg Society, and there was a great similarity in organisational structure between the two.

dam Society showed a slow but steady rise, and publications —mostly journals with exercises— were issued as usual [2, pp. 192–193].

Seen in the light of what happened elsewhere, it seems that the Netherlands, like the U.S.A., merely experienced a late flowering of mathematical interest among the amateurs. In the following section, however, it will be shown how a seemingly insignificant mathematical Society founded in Amsterdam in 1778, due to the social circumstances in the Netherlands could become the major representative of the Dutch mathematical community. It was during the first decades of the 19th century that changes took place which made all this possible.

5 Changes on the way

From its beginning the Amsterdam Society was in a favourable position. Amsterdam and the surrounding villages counted many mathematics teachers, bookkeepers and engineers among their inhabitants. With many publishers and bookstores in town, the Society never found it hard to get its work printed and sold. Things started changing in the Society after a row involving the first secretary of the Society, its founder A.B. Strabbe. In 1804 he was accused of using his position within the board to favour his own solutions above those of others in the Society's journal, and financing his "private" projects with Society money [16][4]. It is highly unlikely that Strabbe did anything he had not been doing all the years before. In my view, his authorative ruling style and his old-fashioned views regarding mathematics made him clash with some of the younger members of the Society: Strabbe favoured Newton's theory of fluxions in analysis, and relied on rote learning in his arithmetic classes; both were no longer considered fashionable (see [6]). In reaction, the Society changed its organisational structure. The board was extended (to prevent future dictatorial escapades) and the members got more influence on the board's decisions [62, inv.nr. 1].

These changes do show in the Society's journal (Leibniz's and Lagrange's theories of the calculus replaced fluxions), and in the minutes of meetings: several committees pop up, to issue special prize questions and produce textbooks (most noteworthy results: [21, 3]). In 1810 one of the members launched the idea to have a special commission look for ways of promoting the Society and the mathematical sciences in general. Four promising young and enthusiastic engineers with contacts in university circles were appointed: most notably J. de Gelder (1765-1848) and O.S. Bangma (1768-1829). In 1811, this so-called "scientific commission" presented a lengthy report [63, II A 34]. They described mathematics in the Netherlands as rather deplorable, and ascribed this situation to the textbooks available in the vernacular: neither the geometry textbooks by Monge, nor the analysis and mechanics textbooks by Lagrange found a Dutch match. Several suggestions were made to ensure that the Society would become interesting, both for beginners **and** for the more advanced (cf. [62, inv.nr. 8, dec. 5 1810]).

The ideas of the scientific committee were put into practice. An active policy

[4] One of the most noteworthy of these projects, which was hailed later, was Strabbe's translation [42] of Montucla's *Histoire des Mathématiques* —the first concise history of mathematics.

was started to invite influential Dutch mathematicians to join the Society. Also, a library was set up. It depended heavily on the books the members donated, but occasionally funds were made available for purchases. Crelle's *Journal für die Reine und Angewandte Mathematik*, Gergonne's *Annales des Mathématiques* and of course[5] the *Correspondance Mathématique* quite soon after they were issued found their way to the Society's library. When in 1842 it became clear that the *Correspondance Mathématique* would cease to exist (see [15]), the decision was made to purchase *Grunert's Archiv* instead [62, inv.nr. 4, juli 4 1842]: although the *Archiv* was a journal of modest scientific stature [53], this decision illustrates that a serious library policy had developed.

In 1813 the scientific committee was made permanent. Since then, it acted as a board which checked the quality of the work produced by members, and investigated future possibilities of the Society. It started the production of a bibliography, reviewing the most important foreign mathematical texts. Although the bibliography project did not last very long [62, inv.nr. 8, 1811], the other initiatives were successful. The newly installed scientific committee was held in high esteem: the committee became the place for the experts of the Society, in which the most valued mathematicians of the time took their places.

Next to these more serious initiatives —which for many professors of mathematics and physics probably were a stimulus to join — the link with the large bulk of amateurs was also maintained. Revealing in this respect was the masochistic calculation by the teacher M.J. Zuidhoff (1737-1817) who solved a recreational[6] problem, resulting in a polynomial of degree 28, with coefficients up to the order of 10^{22} [63, IV G 2]. The same Zuidhoff left the Society a dozen manuscripts, containing his solutions to recreational and elementary problems. Members of the Society finding other or better solutions inserted them into the manuscript [63, IV E 1–12]. This was the kind of "untiring labour" that the Society expected: Zuidhoff was given credit for this work after his death [62, inv.nr. 3, april 13 1819].

The symbiosis between the different groups of mathematicians worked out very well indeed. After 1815 the Society quickly outgrew its local character: members came from all over the country. All important Dutch mathematicians were members, and so were many schoolteachers and engineers (for membership details, see [2]). The way this symbiosis worked may be illustrated by a few letters in the Society's archive concerning one of the members, who in 1821 complained that his solution to a certain problem had not been given credit in the Society's journal. The solution turned out to be false; the editorial board had decided not to mention it, in order not to frighten off any future attempts [62, inv.nr. 16]. In this way the experts checked the mathematics, while all the other members, via prizes, were encouraged to send in their work.

Since the early 1840s regular so-called "scientific meetings" were held, in which

[5] The *Correspondance Mathématique* was a journal edited by Dutch mathematicians, mostly from the southern part of the country (nowadays Belgium). It was heavily sponsored by the Dutch government; see [15].

[6] I call the problem recreational because it was in [39]: a book intended to be recreational. In fact it is a completely useless and boring exercise, which asks the reader to give an algebraic expression for a number times its triagonal number plus two, times ....

several members discussed mathematical problems, sometimes related to papers they had read in journals in the Society's library [62, inv.nr. 140]. The Society, by that time, was a mature mathematical Society. Although it would take until the 1880s before the Dutch considered mathematics as a serious subject, worthy of a university study for its own sake, the Society acted as the organ of a very diverse group of people with a common interest: mathematical study.

6 Final Remarks

The Dutch cultural and institutional background stimulated the emergence of at least five amateur mathematical Societies around 1800. Only one of them lived to see 1830: the Amsterdam Society *Untiring Labour Overcomes All*, which remains in existence up to the present day. Moreover, the Society changed its character, so that it could take its place among its European counterparts as soon as they appeared. I have argued that the amateur mathematical Societies were of a completely different nature than the Societies founded in the 1860s. Other amateur Societies either disappeared, or were not involved with their professional counterparts. Several social factors contributed to the peculiar situation in the Netherlands. To the Dutch, spreading knowledge was deemed very useful, and class differences posed no real obstacle for communication. Furthermore, the Society flourished in the absence of strong national mathematics institutions: it filled a gap, so to say. With the Scientific Commission ensuring a flexible but stable management, and, since the 1820s, the wide spread of members across the whole country —also the relative ease for travel in the Netherlands probably played a role here— this Society was the most important party in the Dutch mathematical community. This situation was exceptional in Europe. Members saw their mathematical standards and their work protected by a community of fellow-mathematicians. In a small country such as the Netherlands, the Society more or less managed to set its own standards for what was regarded as good (i.e. useful) mathematical work. From a present-day point of view that turned out to be not such a good thing, but for the contemporaries it was a way of promoting their beloved science. In this way, the Netherlands already possessed a true Mathematical Society, decades before the rest of Europe, and without "professional mathematics" as such existing.

Acknowledgements

The author thanks Helena Durnová for her help on finding and reading information on East European Mathematical Societies. I would also like to thank Prof.Dr. I. Grattan-Guinness and Dr. G. Schubring for their stimulating remarks and useful comments on earlier versions of this article. Of course the author takes full responsibility for all mistakes still in the article.

References

[1] Raymond C. Archibald, Notes on some minor English mathematical serials, *The Mathematical Gazette* **14** (1929), 379–400

[2] Pieter C. Baayen, Wiskundig Genootschap 1778-1978: some facts and figures concerning two centuries of the Dutch Mathematical Society, *Nieuw Archief voor Wiskunde*, 3d series **26** (1978), 177–205

[3] Obbe S. Bangma, *Inleiding tot de algebra, ten dienste der scholen*, Amsterdam: Wiskundig Genootschap, 1811

[4] A. Barlotti u.a. (Hrsgbr.), *Festschrift zum 300jährigen Bestehen der Gesellschaft*, Hamburg: Mathematische Gesellschaft, 1990 [=*Mitteilungen der Mathematischen Gesellschaft in Hamburg* **12** Heft 1]

[5] Danny Beckers, 'Het is al Mathesis dat de klok slaat'. Genootschappen en wiskundeonderwijs in Nederland buiten het reguliere onderwijs om (1780–1830), *De Negentiende Eeuw* **22** (1998), 220–234

[6] Danny Beckers, Come Children! Some changes in Dutch arithmetic textbooks, 1750–1850, *Paradigm* **1** nr. 27 (February 1999), 18–25

[7] Danny Beckers, Mathematics our goal! Dutch mathematical societies around 1800, *Nieuw Archief voor Wiskunde* 4th series, **17** nr. 3 (August 1999), xxx–yyy

[8] Danny Beckers, Lagrange in the Netherlands, *Historia Mathematica* **26** nr. 3 (August 1999), 224–238

[9] Danny Beckers, Wisconstighe Vermaekelyckheden III, forthcoming in *Euclides*

[10] Bent Birkeland, Norsk Matematisk Forening 75 år, *Normat* **41** (1993), 125–127

[11] Umberto Bottazzini, Francesco Brioschi e la cultura scientifica nell'Italia post-unitaria, *Bollettino della Unione Matematica Italiana*, (8) **1-A** (1998), 59–78

[12] J.W.S. Cassels, The Spitalfields Mathematical Society, *The Bulletin of the London Mathematical Society* **11** (1979), 241–258

[13] Krzysztof Ciesielski, 100th Anniversary of the Jagiellonian University Student's Maths Society, *Mathematical Intelligencer* **14** nr. 4 (1995), 42–46

[14] Peter Duren et al. (ed.), *A century of mathematics in America*, Providence: American Mathematical Society, 1989 [3 volumes]

[15] H. Elkhadem, Histoire de la "Correspondance mathématique et physique" d'après les lettres de Jean-Guillaume Garnier et Adolphe Quetelet, *Bulletin de l'Académie Royale de Belgique*, **68** (1978), 316–366

[16] S.B. Engelsman, Het Wiskundig Genootschap en eerste secretaris Strabbe, R.H. de Jong, T.W.M. Jongmans en P.H. Krijgsman (red.), *Tweehonderd jaar Onvermoeide Arbeid*, Amsterdam: Wiskundig Genootschap (1978) [catalogue of exhibition], 9–19

[17] N.S. Ermolaeva, On the history of the St. Petersburg and Petrograd Mathematical Societies, *Proceedings of the St. Petersburg Mathematical Society* **2** (1994), 213–221 [translation by the American Mathematical Society of the Russian original]

[18] László Filep, Life and work of Gyula Farkas (1847–1930), *Bolletino di Storia della Scienze Matematiche* **3** (1983), 137–160

[19] Thomas S. Fiske, Mathematical progress in America, pp. 3-11 in [14] dl. I [reproduction of the presidential address, first published in the *Bulletin of the American Mathematical Society* **11** (1905)]

[20] Thomas S. Fiske, The beginnings of the American Mathematical Society, pp. 13–17 in [14] dl. I

[21] Jacob de Gelder, *Meetkundige analysis*, Amsterdam / Den Haag: Wiskundig Genootschap, 1811–1813

[22] Helmuth Gericke, Aus der Chronik der Deutschen Mathematiker-Vereinigung, *Jahresberichte der Deutschen Mathematiker Vereinigung* **68** (1966), 46–74

[23] W.P. Gerritsen (red.), *Het Koninklijk Instituut (1808-1851) en de bevordering van wetenschap en kunst*, Amsterdam: KNAW (1997)

[24] Hélène Gispert, *La France mathématique. La Société Mathématique de France (1872-1914)*, Paris: Société Française d'Histoire et des Techniques, 1991 [*Cahiers d'Histoire et de Philosophie des Sciences, Nouvelle Serie* **34**]

[25] Hélène Gispert, Les débuts des sociétés mathématiques en Europe, *Gazette des Mathématiciens* **53** (juin 1992), 25–31

[26] Hélène Gispert and Renate Tobies, A comparative study of the French and German Mathematical Societies before 1914, pp. 407–430 in [28]

[27] Mary Louise Gleason, *The Royal Society of London: years of reform, 1827-1847*, New York: Garland, 1991

[28] Catherine Goldstein et al. (ed.), *L'Europe mathématique: histoires, mythes, identités*, Paris: Editions de la Maison des Sciences de l'Homme, 1996

[29] Ivor Grattan-Guinness, *The Fontana History of the Mathematical Sciences*, London: Fontana Press, 1997

[30] Ivor Grattan-Guinness (ed.), *Companion Encyclopedia of the History and Philosophy of the Mathematical Sciences*, London / New York: Routledge (1994) vol. II, part 11 (pp. 1425–1539)

[31] M. Guyot, *Nouvelles récréations physiques et mathématiques*, Paris: Gueffier (1769); 4 volumes; Dutch translation: *Nieuwe Natuur- en Wiskonstige vermaaklykheden*, Rotterdam: Reinier Arrenberg, 1771-1775

[32] Paul Halcke, *Deliciae mathematicae, oder mathematisches Sinnen-Confect*, Hamburg: Nicolaus Sauer, 1719. Dutch translation: *Mathematisch Zinnen-Confect, of wiskundige uytspanningen*, Purmerend: Pieter Jordaan, 1767

[33] *Kunstfrüchte der Hamburgischen Kunst-Rechnungs Liebende Societät* **I** (1723)

[34] Ulf Hashagen, Georg Cantor und die Gründung der DMV, pp. xxx–yyy in Michael Toepell (Hrsg.), *Mathematik im Wandel: Anregungen zu einem fächerübergreifenden Mathematikunterricht* Bd. **2**, Hildesheim / Berlin: Franzbecker (forthcoming)

[35] Edward R. Hogan, The Mathematical Miscellany, *Historia Mathematica* **12** (1985), 245–257

[36] Edward R. Hogan, George Baron and the Mathematical Correspondent, *Historia Mathematica* **3** (1976), 403–415

[37] Ernst H. Kossman, *De lage landen 1780-1980*, Amsterdam: Elsevier, 1986, 2 volumes. Also available in english edition: *The low countries 1780-1940*, Oxford: Clarendon Press, 1978

[38] Jean Leurechon, *Récréations mathématiques*, Rouen: Charles Osmont (1630)

[39] Heinrich Meissner, *Arithmetische Roozenkrans*, Purmerend: Pieter Jordaan, 1776 [Dutch translation by Jacob Oostwoud from the German original]

[40] Wijnandus W. Mijnhardt, *Tot heil van 't menschdom: culturele genootschappen in Nederland, 1750-1815*, Amsterdam: Rodopi, 1987

[41] Wijnandus W. Mijnhardt, "Het Volk van Nederland eischt verlichting": Franse hervormingsijver en Nederlandse wetenschapsbeoefening, pp. 11–37 in [23]

[42] Jean E. Montucla, *Historie der wiskunde*, Amsterdam: Wiskundig Genootschap, 1782–1804, 4 volumes.

[43] Luboš Nový, Les mathématiques et l'évolution de la nation tchèque (1860–1918), pp. 499–515 in [28]

[44] *Mathematische Liefhebberijen met het Nieuws der Franse en Duytsche Scholen* **I** (1754) – **XI** (1764)

[45] Eduardo Ortiz, The nineteenth-century international mathematical community and its connection with those on the Iberian periphery, pp. 321–343 in [28]

[46] Jacques Ozanam, *Récréations mathématiques et physiques*, Paris: Jombert, 1694. Dutch translation, Amsterdam: George Gallet, 1698

[47] Karen H. Parshall and David E. Rowe, American Mathematics comes of age: 1875–1900, pp. 3–28 in [14] dl. III

[48] Zofia Pawlikowska-Brożek, On mathematical life in Poland, pp. 289–301 in [28]

[49] Teri Perl, The Ladies' Diary, or Woman's Almanack, *Historia Mathematica* **6** (1979), 36–53

[50] Adrian C. Rice, Robin J. Wilson and Helen J. Gardner, From student club to national Society: The founding of the London Mathematical Society in 1865, *Historia Mathematica* **22** (1995), 402–421

[51] Peter Rietbergen, *Europe: A cultural history*, London: Routhledge, 1998

[52] Daniel Roche, *Le siècle des lumières en province. Académies et académiciens provinviaux, 1680–1789*, Paris: Mouton, 1978 [2 volumes]

[53] Peter Schreiber, Johann August Grunert and his "Archiv der Mathematik und Physik" as an integrative factor of everyone's mathematics in the middle of the nineteenth century, pp. 431–444 in [28]

[54] Christoph J. Scriba, Die Kunst-Rechnungs-liebende Societät in Hamburg und die Deutsche Akademie der Naturforscher Leopoldina, *Mitteilungen des Mathematischen Gesellschaft Hamburg* **12** (1991), 629–661

[55] Mika Seppälä, Katkelmia Suomen Matemaattisen Yhdistyksen historiasta, *Arkhimedes* **37** (1985), 231–236

[56] Arnoldus B. Strabbe, *Oeffenschool der Mathematische Weetenschappen* **I** (1770) – **II** (1771)

[57] Renate Tobies, Warum wurde die Deutsche Mathematiker-Vereinigung innerhalb der Gesellschaft deutscher Naturforscher und Ärtze gegründet?, *Jahresberichte der Deutschen Mathematiker Vereinigung* **93** (1991), 30–47

[58] František Veselý, *100 let Jednoty českých matematiků a fyziků*, Praha: Státní pedagogické nakladatelství (1962)

[59] Rob P.W. Visser, De Eerste Klasse van het Koninklijk Instituut: de natuurwetenschappen tussen nut en geleerdheid, pp. 39–60 in [23]

[60] Wynant van Westen, *Mathematische Vermaecklyckheden*, Arnhem: Jacob van Biesen, 1636. Dutch translation of [38]

[61] Pieter J. van Winter, *Hoger beroepsonderwijs avant-la-lettre*, Amsterdam: Noord-Hollandse Uitgevers Maatschappij, 1988.

[62] Archive of the "Wiskundig Genootschap", *Holland State Archive*, Haarlem.

[63] Archive of the "Wiskundig Genootschap", *University of Amsterdam*

[64] *Archief, uitgegeven door het Wiskundig Genootschap* **1** (1856/59) – **3** (1870/74), Amsterdam: Weijtingh

Appendix: Mathematical Societies

The Societies listed in the table below are the Societies which have been checked for this article. The entries are restricted to European mathematical Societies founded before 1950. One exception has been made to the geographical restriction: the *American Mathematical Society* is in the list because its inspiration was so clearly European. A list like this can never be complete —so I will make no claims in that direction. Any suggestions to make this list more complete are welcome. If possible, the Societies are called by their proper names; otherwise, the name appears between "quotation marks". In the latter case, the name mentioned is one that makes it easy to identify the Society. All details that couldnot be checked, have been indicated with a question mark. Some of the Societies have been called "student group". This is a form of Society which has not been discussed in the article, and which can be considered as an early —less official— seminar. They've been included if they referred to themselves as being a Society; sometimes they had more objectives, or the objectives changed over the years to become more Society-like. They've not been included if there was nothing more to it than a seminar, as was the case with many of such Societies in the German countries (the *Mathematische Gesellschaft Jena* and the *Mathematisches Kränzchen zu Karlsruhe* for example). These 'Societies' depended solely on the mathematics professor at the local university.

Country	**Society**	**Year**	**Status**
Austria	• Mathematische Gesellschaft in Wien	1903	Professionals, since 1948 operating under the name *Österreichische Mathematische Gesellschaft*.
Belgium	• Société Mathématique de Belgique	1921	Professionals and teachers.
Bohemia	• Spolek pro volné přednášky z matematiky a fyziky	1862	Student circle, by 1869 grown out to a Bohemian Society, representing mathematics teachers at all levels. Since the split of Czechoslovakia, there are two organizations.
Britain	• "Jones' Coffee-house Mathematical Society" • Society of ingenious mathematicians	ca. 1707/1708 1710–1724	Amateur Society, meeting at Jones' Coffee-house in London. Amateur Society.

Country	Society	Year	Status
	• Spitalfields Mathematical Society	1717–1846	Best known British amateur Society, finally merged with the *Astronomical Society* of London.
	• Manchester Mathematical Society	1718–17??	Amateur Society.
	• Lewes Mathematical Society	1730s	Amateur Society.
	• "York Mathematical Society"	mid 18th.	Amateur Society.
	• The Mathematical Society of Wappin	ca. 1750	Amateur Society.
	• Oldham Mathematical Society	1794–18??	Amateur Society.
	• London Mathematical Society	1865	Students' (successful) attempt to start national Society.
	• Association for the Improvement of Geometrical Teaching	1871	National teacher's organisation; since 1897 called *The Mathematical Association.*
	• Edinburgh Mathematical Society	1883	Scottish initiative, similar to the *London Mathematical Society.*
Bulgaria	• Съюз на Бблгарските Математици	1896	????
Danmark	• Dansk Matematisk Forening	1873	Professionals, wanting to stimulate Danish research.
Finland	• Suomen matemaattinen yhdistys	1868	Professors and highschool teachers of mathematics.
France	• Société Mathématique de France	1872	Professionals concerned about mathematics in France

Country	Society	Year	Status
German countries & states	• Zunft der vereinigten und fleissigen Rechenmeister	1684–1685	Amateur Society.
	• Kunstrechnungs-liebende Gesell-schaft Hamburg	1690	Amateur Society.
	• Göttinger Mathematischen Gesellschaft	1873–1921	Professionals; did not find much enthousiasm among the leading mathemati-cians.
	• Deutsche Mathematiker Vereinigung	1890	University and gymna-sium mathematicians with an interets in research unite and emancipate from a more general physics Society.
	• Berliner Mathematische Gesellschaft	1901	Professionals from univer-sity and gymnasium in a local organisation stimu-lating research.
	• Gesellschaft für Angewandte Mathematik und Mechanik	1922	Professionals in the "ap-plied sphere" uniting.
Greece	• Ελληνική Μαθηματική Εταιρεία	1918	Professionals.
Hungary	• Mathematikai és Physikai Társulat	188?	Professional mathemati-cians striving for better educational environment. Later under the name: *Bolyai János Matematikai Társulat.*
Iceland	• Íslenska stærðfræðafégið	1947	Professionals, at the time mostly working as teach-ers, wanting to stimulate mathematical research in Iceland.

Country	Society	Year	Status
Italy	• Circolo Matematico di Palermo	1884	Determined effort by Sicilian professionals to draw international attention for their (mathematical) research.
	• Mathesis	1895	National organisation of teachers.
	• Società Italiana di Matematica	1908	Professionals united nationally.
	• Unione Matematica Italiana	1922	*Mathesis* and the *Società* combine forces.
The Netherlands	• Onvermoeide Arbeid Komt Alles te Boven	1778	Local amateur Society, developing into a national Society with room for professionals during the early 19th century.
	• De Wiskonst ons Doel	± 1780–1???	Amateur Society.
	• Mathesis Scientiarum Genitrix	1785	Amateur Society, developed into a Society for painters and artists.
	• Door Tijd en Vlijt	1806–1808?	Amateur Society.
	• Mathesis Artium Genitrix	1807–1819	Amateur Society of Jewish teachers; merged with a larger Jewish Society.
Norway	• Norsk Matematisk Forening	1918	Norwegian professors.
Poland	• Société Polonaise de Mathématiques	1919	Cracow-initiative to represent the Polish mathematical community.
Portugal	• Sociedade Portuguesa de Matemática	1940	Professionals.
Russian empire	• "Moscow Student Society"	1810–18??	Student group, also trying to popularise mathematics for the Moscow public.

Country	Society	Year	Status
	• Московске Математическое общество	1867	Professionals.
	• Харбковское Математическое общество	1879	Kharkov teachers and professionals.
	• Санкт Петербурзщское Математическое общество	1890–1917	Professionals; dissolved and re-founded twice, due to the political circumstances in the former Sovjet Union. Today's Society exists formally since 1959; a less formal seminar dates back to 1953.
	• Казанское Математическое общество	1890	Kazan professionals.
	• Киевское Математическое общество	1890	Kiev professionals.
Spain	• Real Sociedad Matemática Española	1911	Professionals; the "Royal" character was obtained later.
	• Societat Catalana de Matemàtiques	1931	Professionals, founded from within the *Societat Catalana de Ciències*.
Sweden	• "Lunds Mathematical Society"	1862–1904	Student group, since 1871 under the name *Matematisk-fysiska föreningen*. In 1904 physics took over entirely; dissolved in the early 1920s.
	• Lunds Matematiska Sällskap	1923	Active student group, also for interested people and practitioners; held its student group character at least during the first 25 years.

Country	Society	Year	Status
	• Svenska matematikersamfundet	1950	To establish contacts and exchange of information with both national and international professionals.
Switzerland	• Société Mathématique Suisse	1910	Professionals, founded from within the *Schweizerische Akademie der Naturwissenschaften*.
U.S.A.	• American Mathematical Society	1888	Founded in New York by students, based on the idea of the *London Mathematical Society*; national since 1894.